



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ :	A1	(11) International Publication Number: WO 96/27057
E04B 2/78		(43) International Publication Date: 6 September 1996 (06.09.96)

(21) International Application Number: PCT/BE96/00022	(81) Designated States: AL, AM, AT, AT (Utility model), AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), TI, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TI, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).
(22) International Filing Date: 1 March 1996 (01.03.96)	
(30) Priority Data: 9500183 2 March 1995 (02.03.95) BE	
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	Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: STRUCTURAL ELEMENTS FOR THE CONSTRUCTION OF WALLS AND THE LIKE

(57) Abstract

The invention relates to structural elements for constructing walls and the like, characterised in that they essentially consist of clamping profiles (1) that are connected two by two by connecting pieces (2) locally slideable in said clamping profiles (1), which clamping profiles (1) have resilient wings (6) directed towards each other between which the flange (7) of a panel (5) can be pushed and against which an achievement profile (10) can be held clamped which extends perpendicularly with respect to this panel (5).

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"Structural elements for the construction of walls and the like".

This invention relates to structural elements for the construction of walls and the like.

5 The object of the invention is the elaboration of structural elements that are composed of panels to be clamped together and thereto appertaining profiles whereby the construction of walls with a smooth continuous surface is made possible.

10 To make this possible according to the invention, the structural elements according to the invention are composed of clamping profiles that are connected two by two by connecting pieces locally slidable in said clamping profiles, which clamping profiles have resilient wings directed towards each other between which the flange of a panel can be pushed and against which an achievement profile can be held clamped which extends perpendicularly with respect to this panel.

15 20 Still according to the invention said clamping profiles have a hollow chamber in cross-section whereof two sides form said wings whereof the edges diverge beyond the place where said wings touch the said flange of a panel, and at such an angle that against said edge the longitudinal edge of an achievement profile can be held pushed, whereas this edge further still is perpendicularly bent with respect to the longitudinal symmetry plane of the clamping profile.

25 30 A characteristic of this invention is that said panels have a flange extending perpendicularly with respect to this panel, which flange has locally extending protrusions with a height that is calculated in order to

let the concerned resilient wing slide over it on one hand and on the other hand to be held back by this protrusion.

According to a possible embodiment said achievement profile has two longitudinal borders that are bent at their ends in order to be pushed in the working state against the under an angle bent resilient wings of said clamping profiles.

In a preferred adapted realization said achievement profile has an arched cross profile between the two said longitudinal borders in order to assure a clamping effect of the achievement profile with respect to their clamping profiles connected with each other.

Other details and advantages of the invention will appear from the following description of structural elements for the construction of walls and the like, according to the invention. This description is exclusively given by way of example and does not limit the invention. The reference numbers are related to the elements shown in the figures annexed hereto.

Figure 1 is a view according to a horizontal cross section of two clamping profiles connected to each other with therewith cooperating extremities of two panels.

Figure 2 illustrates a view according to a horizontal cross section of an achievement profile for a wall or a part of a wall.

Figure 3 illustrates still according to a similar cross section the connection between two achievement profiles and a column with circular cross section.

Figure 4 illustrates according to a vertical longitudinal section the connection between the upper- and bottom extremity of a panel with a floor, respectively a ceiling.

Figure 5 illustrates according to a perspective view a connection piece such as provided for the clamping of two clamping profiles.

Figure 6 illustrates a top view and on an other scale a connecting component to be mounted between two continuous grooves appertaining to two frames.

5 Figure 7 illustrates a side view of the connecting component according to figure 6.

Figure 8 illustrates the set up of the clamping profiles mounted in the horizontal plane.

10 Figure 9 relates to the installation of a particular profile to be used for the mounting of a glazing.

Figure 10 relates to the same matter as figure 9 upon the mounting of glazing on two levels.

15 The structural elements presented by these different figures are essentially composed of clamping profiles 1 that form vertical components in the presently proposed embodiment. Two such clamping profiles are connected with each other by connecting pieces 2. The shape of a connecting piece 2 appears very clearly in figure 5 where the connecting with a clamping profile is also visible.

20 By changing the width of the connecting piece 2 the thickness of the structure of panels can also be modified, without having to modify other structural elements.

25 A connecting piece 2 has in the working state the profile of an inverted U with two tonguelets 3 sideways that can be slid in and fit in elongated notches 4 that are provided on one side of the sides of a clamping profile. The tonguelets are sufficiently resilient to assure the blocking of the connecting piece 2 with respect to a clamping profile 1.

30 The clamping profiles that are with the panels 5 the fundamental components of the structural elements for the forming of walls, are formed by the bending of a metal sheet so that a hollow chamber is formed with two resilient wings 6 that are directed

towards each other at the height where these resilient wings clamp the flange 7 of a panel 5.

5 The panels are composed of thin-walled sheet material totally or partially filled with plaster and/or an isolating material.

10 The clamping effect is made possible because on the flanges 7 which are perpendicular to the panel 5 protrusions 8 are each time locally formed. The triangular shape of these protrusions 8 is calculated so that, when a panel is pushed with its flange 7 between two resilient wings 6 of the clamping profile 1, the concerned resilient wing slides towards the clamping profile over the therewith cooperating triangular protrusions 8. When the flange 7 of a profile 1 is totally pushed inside, it can 15 not simply slide out. In the mounted state of a panel the triangular protrusion 8 of a flange stays embedded in the clamping profile.

20 In reality two consecutive panels always closely fit so that between two resilient wings 6 of a clamping profile two flanges 7 each appertaining to a panel 1 always stay embedded. This situation is well explained by figure 1.

25 When a wall for some reason does not continue or when two walls because of the intervention of a vertical component, such as a pillar 9 (figure 3), have to be connected, an achievement profile 10 can be used. Such an achievement profile preferably has an arched cross profile. Two longitudinal edges 11 of such an achievement profile are bent in such a way so that they, in the mounted state, stay blocked between the flange 7 of a panel and the under an angle bent resilient wing of a clamping profile.

30 Such an achievement profile 10, in its mounted state with respect to two clamping profiles 1 is very clearly shown in figure 2.

Also in figure 3 two such achievement profiles are represented but in a modified embodiment. Indeed the arched cross profile of the achievement profile is locally interrupted in order to form a continuous elongated groove 12 wherein flexible straps 13 are situated against which the achievement profile can stay pushed against the pillar 9. The achievement profile can be screwed onto the pillar 9 or fixed in another way with respect thereto.

Thanks to this disposition it immediately appears that walls constructed from the above described panels and clamping profiles can be connected under whatever angle with each other. The visible walls, as well from the panel 5 as from the achievement profile 10, shown, in the mounted state, a nice finished view whereof the joints, which are indeed visible, are reduced to a strict minimum.

For the mounting of the panels with respect to a floor or a ceiling use is made of components that are given in detail in figure 4. In this figure the panels 5 are visible and also the manner according to which these panels can be slid at the bottom as well as at the top along the outside of the frames 14. The frames 14 have along the edge that connects either a floor 15, or a ceiling 16, each time a continuous groove 17 wherein, respectively against which, the extremities 18', respectively 18'', of a connecting component 18 can be pushed. The frames 14 are thus always held at the same distance from each other. Upon mounting the panels 5 partly slide out of these frames.

The correct height of the panels 5 is determined with respect to a floor by adjusting a setscrew 19 that cooperates with a clamping bolt 20 that belongs to the lowest U shaped component 21 appertaining to the panels 5.

5 Besides the above described use of vertically mounted clamping profiles, said clamping profiles can also be adapted in the horizontal space upon modification of the connecting pieces (figure 8). The connecting piece 2', also provided with tonguelets 3', has two wings 21. On said wings horizontally extended clamping profiles can be blocked. These wings 21 extend along both sides of the tonguelets 3.

10 Figure 9 clearly illustrates the manner in which, using horizontal clamping profiles 1, glazing plates 22 can be mounted. With respect to the upper wings 6 of the clamping profiles 1 a profile 23 is applied whereof the longitudinal edges are bent Z shaped in order to finally form a flange 24. Thereupon a L shaped profile 25, whereof one flange is provided with protrusions 8, is clamped between both the wings 6. Continuous closing strips 26 of rubber or a flexible plastic material are placed between the extremities of the profile 23 and the edge bent perpendicularly of the L shaped profile 25.

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20 In figure 10 the same components are used in their adaptation for a glazing on two levels.

25 The invention is not only limited to the hereabove described embodiment and modifications can be brought to it for as much as they are comprised in the scope of the claims hereto annexed.

CLAIMS

1. Structural elements for constructing walls and the like, characterised in that they essentially consist of clamping profiles (1) that are connected two by two by connecting pieces (2) locally slidable in said clamping profiles, which clamping profiles (1) have resilient wings (6) directed towards each other between which the flange (7) of a panel can be pushed and against which an achievement profile (10) can be held clamped which extends perpendicularly with respect to this panel.

2. Structural elements according to claim 1, characterized in that said clamping profiles (1) have a hollow chamber in cross-section whereof two sides form said wings (6) whereof the edges diverge beyond the place where said wings touch the said flange (7) of a panel, and at such an angle that against said edge the longitudinal edge of an achievement profile (10) can be held pushed, whereas this edge further still is perpendicularly bent with respect to the longitudinal symmetry plane of the clamping profile.

3. Structural elements according to claim 2, characterized in that said edge of a resilient wing (6) is bent over an angle in order to embed an achievement profile (10).

4. Structural elements according to one of the claims 1 and 2, characterized in that said panels (5) have a flange (7) extending perpendicularly with respect to this panel, which flange has locally extending protrusions (8) with a height that is calculated in order to let the concerned resilient wing (6) slide over it on one hand and on the other hand to be held back by this protrusion (8).

5. Structural elements according to one of the claims 1 to 4, characterized in that said connecting piece (2), destined to connect two clamping profiles (1), is profiled in U shape and has, in the working state, two

sideways downwardly extended tonguelets (3) that can be slid resilient in the thereto provided elongated notches (4) provided in said clamping profiles (1).

5 6. Structural elements according to claims 2 to 5, characterized in that said achievement profile (10) has two longitudinal borders (11) that are bent at their ends in order to be pushed in the working state against the under an angle bent resilient wings (6) of said clamping profiles (1).

10 7. Structural elements according to claim 6, characterized in that said achievement profile has an arched cross profile between the two said longitudinal borders in order to assure a clamping effect of the achievement profile with respect to their clamping profiles connected with each other.

15 8. Structural elements according to claim 7, characterized in that said arched cross profile is interrupted in its middle in order to be able to cooperate with a pillar with circular cross section and therefor has an elongated groove (12).

20 9. Structural elements according to one of the claims 1 to 8, characterized in that said panels (5) are composed of two components and can be slid on the top and on the bottom over continuous frames (14).

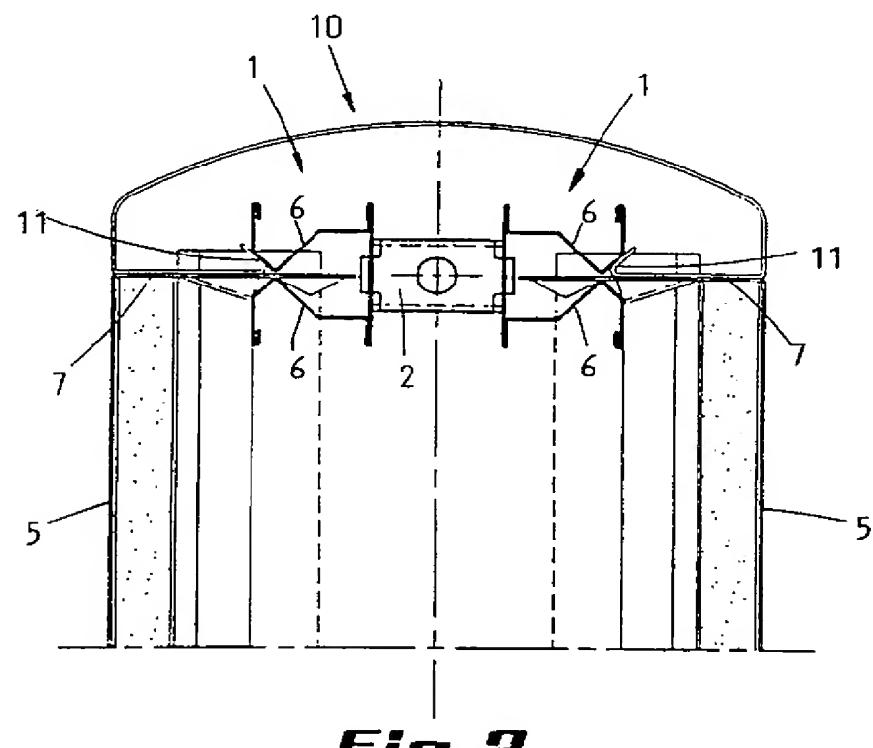
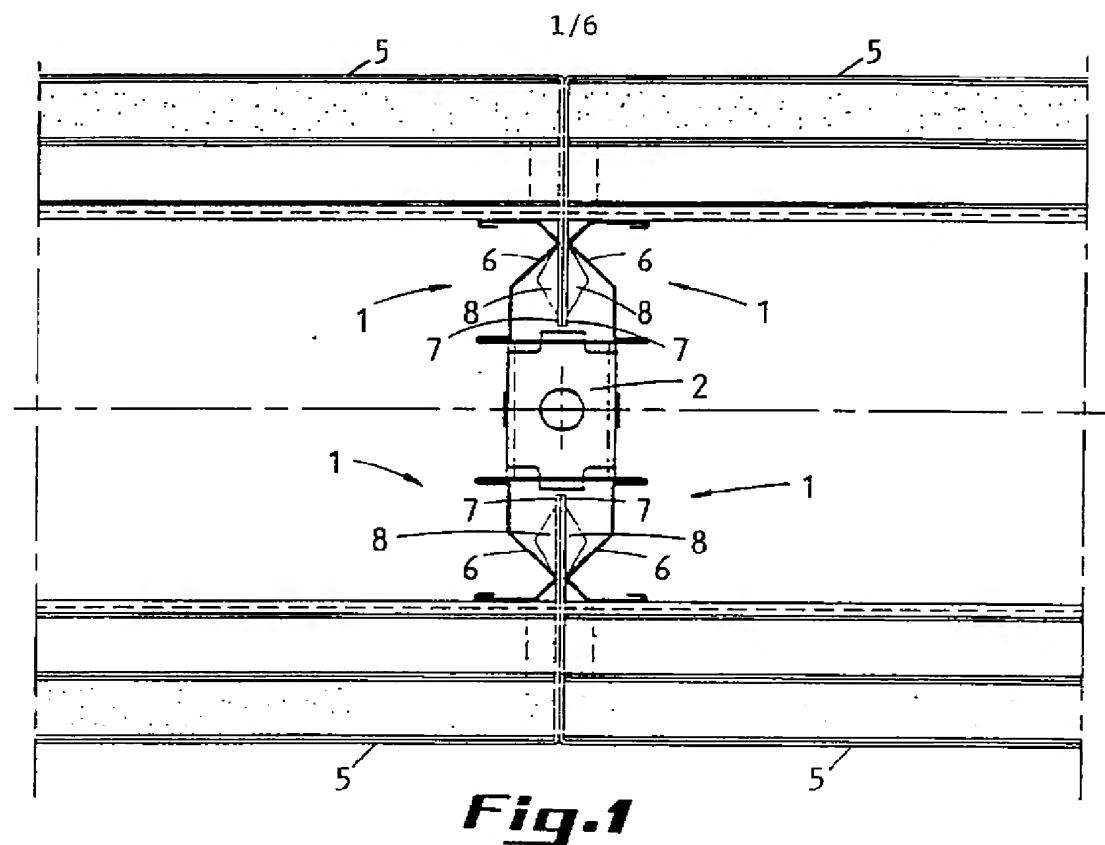
25 10. Structural elements according to claim 9, characterized in that said frames (14) have a continuous groove (17) along the side that is turned inwardly in the working state in which groove the extremities (18') of a connecting component (18) fit in order to assure a correctly maintained spacing between said frames (14).

30 35 11. Structural elements according to one of the claims 1 to 10, characterized in that said panels (5) in the working state are embedded at the bottom in a U shaped component (21) that is provided with a clamping bolt (20) with a setscrew (19) in order to determine the height of the panel (5), with respect to the floor (15).

5 12. Structural elements according to one of the claims 5 to 11, characterized in that said connecting pieces (2) have wings (21) on both sides of aforesaid tonguelets (3) whereon clamping profiles (1) can be mounted.

10 13. Structural elements according to one of the claims 1 to 12, characterized in that, for the installation of a panel made of glass or the like a profile (23) is provided with Z shaped bent longitudinal borders in order to form a flange (24) that cooperates with a flange (25') that is provided with protrusions (8), whereby the clamping of flange (25') with respect to the resilient wings (6) is made possible, whereas the profile (23) itself with respect to two clamping profiles (1) can be blocked.

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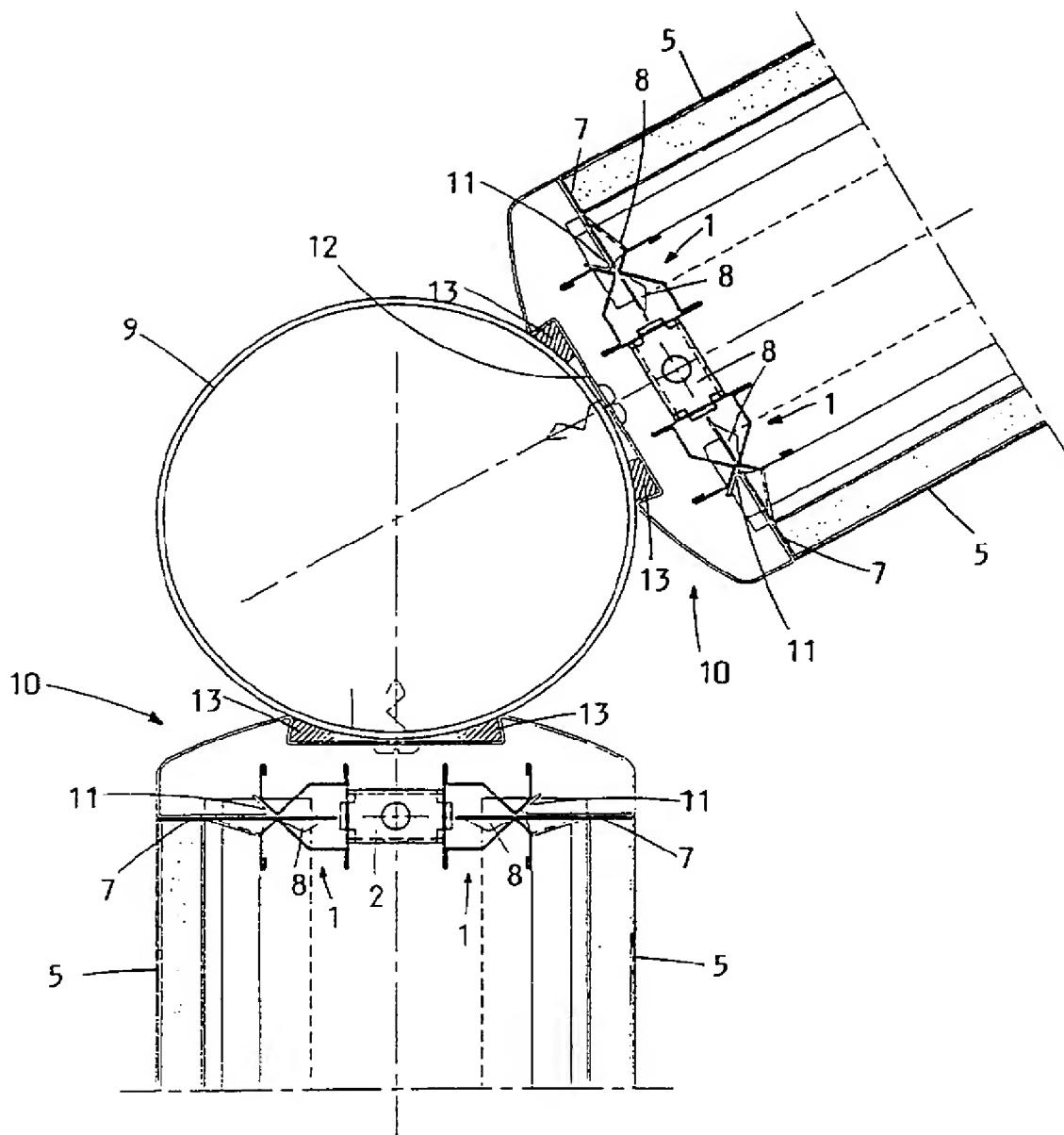


Fig. 3

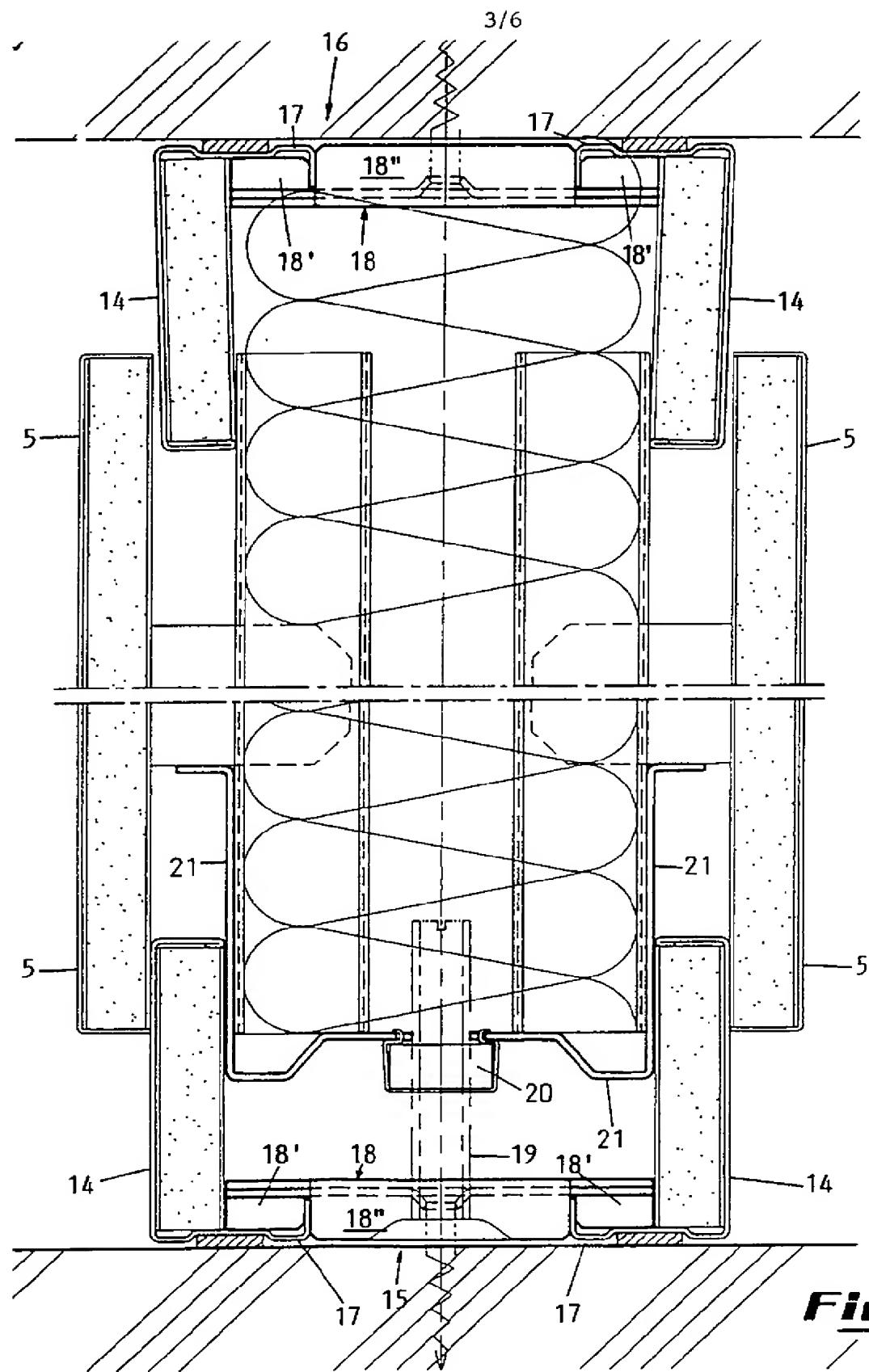


Fig. 4

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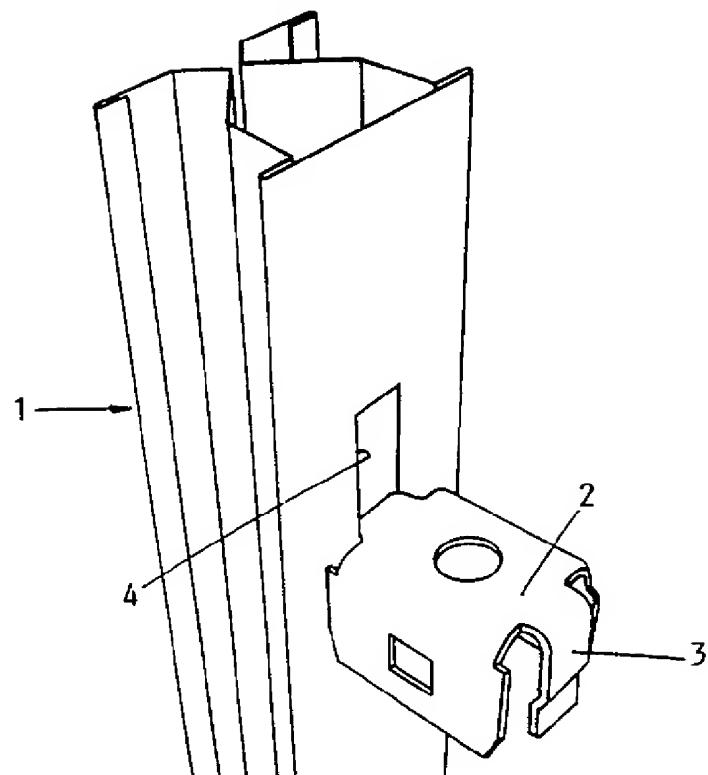


Fig. 5

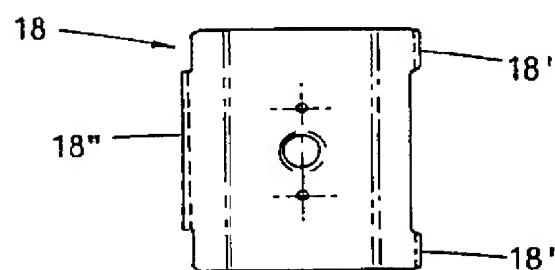


Fig. 6

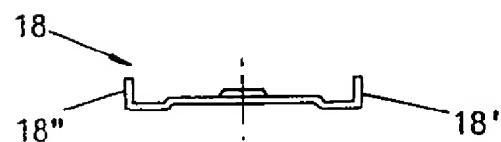


Fig. 7

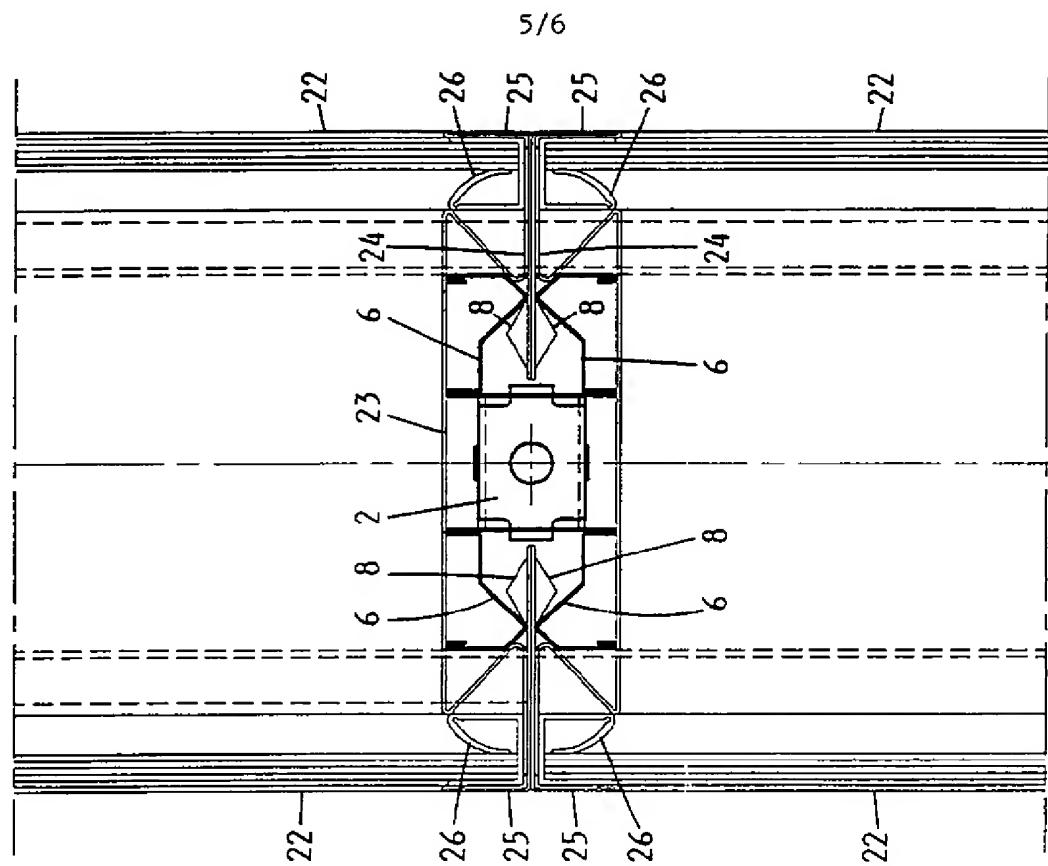


Fig. 10

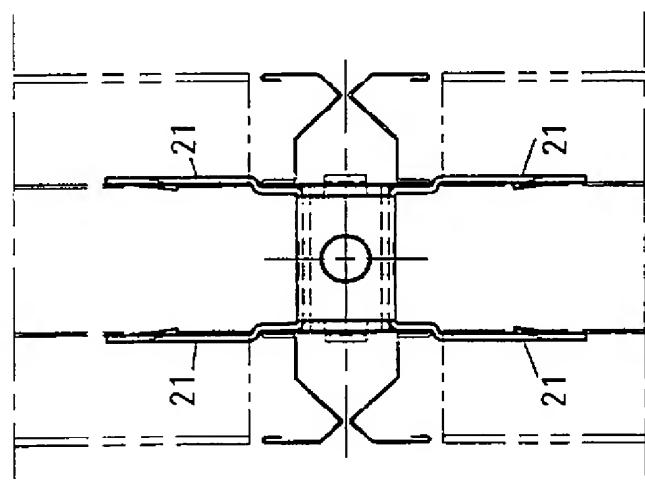
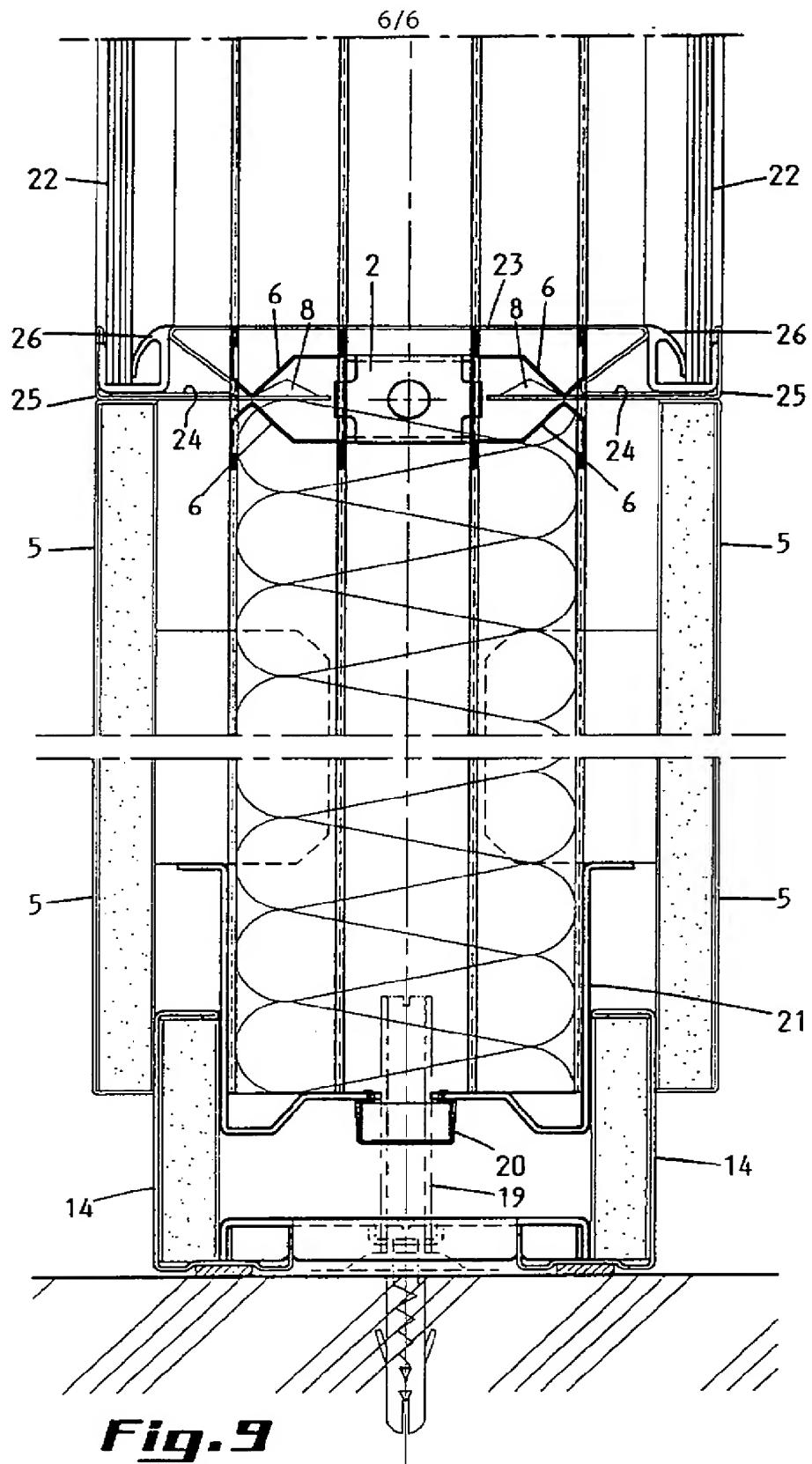


Fig. 8



INTERNATIONAL SEARCH REPORT

International Application No

PCT/BE 96/00022

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 E04B2/78

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 E04B

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE,A,19 47 838 (FLANGEKLAMP CORP) 1 April 1971	1,2
Y	see page 5, line 3 - page 7, line 19	3,4,6,7
A	see page 9, line 22 - page 10, line 26; figures 4,6,13,14	5
X	FR,A,2 163 757 (WESTAG & GETALIT AG) 27 July 1973	1,2
	see page 4, line 6 - page 5, line 33; figures	

Y	US,A,5 184 441 (BALFANZ) 9 February 1993	3,6,7
	see column 3, line 4 - column 4, line 17; figures 1,2	

Y	US,A,2 412 404 (JACKSON) 10 December 1946	4
	see column 2, line 11 - line 43; figures 1,2,7,8	

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Date of the actual completion of the international search

25 June 1996

Date of mailing of the international search report

- 4.07.96

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR,A,1 250 320 (JASINSKI) 29 March 1961 see page 1, right-hand column, line 36 - page 2, left-hand column, line 31; figures ---	1,2
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A	CA,A,1 115 923 (MENNIE) 12 January 1982 see page 5, line 15 - line 20; figures ---	5
A	GB,A,511 074 (HARRIS & SHELDON LTD) 14 August 1939 see page 4, line 19 - line 102; figures 1,2 ---	5
A	AU,A,8 676 675 (BALL) 26 May 1977 see page 2, line 1 - line 8; figures 1,2 ---	6,7
A	US,A,4 119 287 (MOLLENKOPF) 10 October 1978 see column 2, line 17 - line 35; figure 2 -----	8

INTERNATIONAL SEARCH REPORT

Information on patent family members

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